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IS 3889 (1985): Chisels, Dental [MHD 8: Dentistry]

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(Reaffirmed 2001)

Indian Standard

SPECIFICATION FOR CHISELS, DENTAL

(First Revision)

Dental Instruments Sectional Committee, CPDC 21; Dental Cutting and Filling Instruments Subcommittee, CPDC 21 : 1 [Ref : Doc : 21 (1756)]

1. Scope — Specifies material, dimensional and other requirements of chisels used in dentistry.

2. Terminology

2.1 *Dental Chisel* — An edged tool with a straight bevelled edge for shaping and cutting dentine or enamel.

2.2 *Mono-Bevelled Chisel* — A chisel with cutting edge bevelled on one side.

2.3 *Shank* — The portion of the chisel between the blade and the handle.

3. Types — The chisels shall be classified according to the angle of the blade.

3.1 *Straight Chisel* — A chisel with the handle, shank and blade in a straight line (*see* Fig. 1 and 2).

3.2 *Angle Chisel* — A chisel with one or more angles in the shank of the instrument (*see* Fig. 3 to 5).

4. Material — The material used in the manufacture of dental chisels shall conform to the requirements given in **4** of IS : 3887-1978 'General requirements for cutting type dental instruments (*first revision*)' for all the parts except tip.

4.1 *Carbide Tip* — The carbide tip of the chisels shall be of designatian 'M 10' of IS : 2428-1964 'Application of carbides for machining, ranges of application and colour code'.

5. Requirements — The dental chisels shall comply with the requirements as specified in **3** of IS : 3887-1978.

6. Shape and Dimensions

6.1 The dental chisels shall conform to shape and dimensions as given in Fig. **1** to **5**.

6.2 Tolerances on linear dimensions, excluding the blade, shall be permitted as follows:

a) ±0·05 mm on dimensions up to 2·0 mm,
b) ±0·1 mm on dimensions above 2·0 mm and up to 5·0 mm,
c) ±0·2 mm on dimensions above 5·0 mm and up to 20·0 mm,
d) ±0·5 mm on dimensions above 20·0 mm and up to 50·0 mm,
e) ±1·0 mm on dimensions above 50·0 mm and up to 100·0 mm, and
f) ±2·0 mm on dimensions above 100·0 mm.

6.2.1 Tolerance on angular dimensions shall be ± 1°.

6.3 The tolerances on the nominal dimensions of the blade shall be as follows:

a) Length of the blade	±0·25 mm
b) Width of the blade	±0·05 mm

6.4 The cutting edge shall be straight and of uniform sharpness.

7. Workmanship and Finish — The requirements specified in **6** of IS : 3887-1978 shall apply.

8. Heat Treatment — The blade and the cutting edge of the chisel except the carbide tip shall be uniformly hardened and tempered to a hardness of 600 to 650 *HV*, when tested in accordance with IS : 1501-1968 'Method for Vickers hardness test for steel (*first revision*)'.

Adopted 28 February 1985

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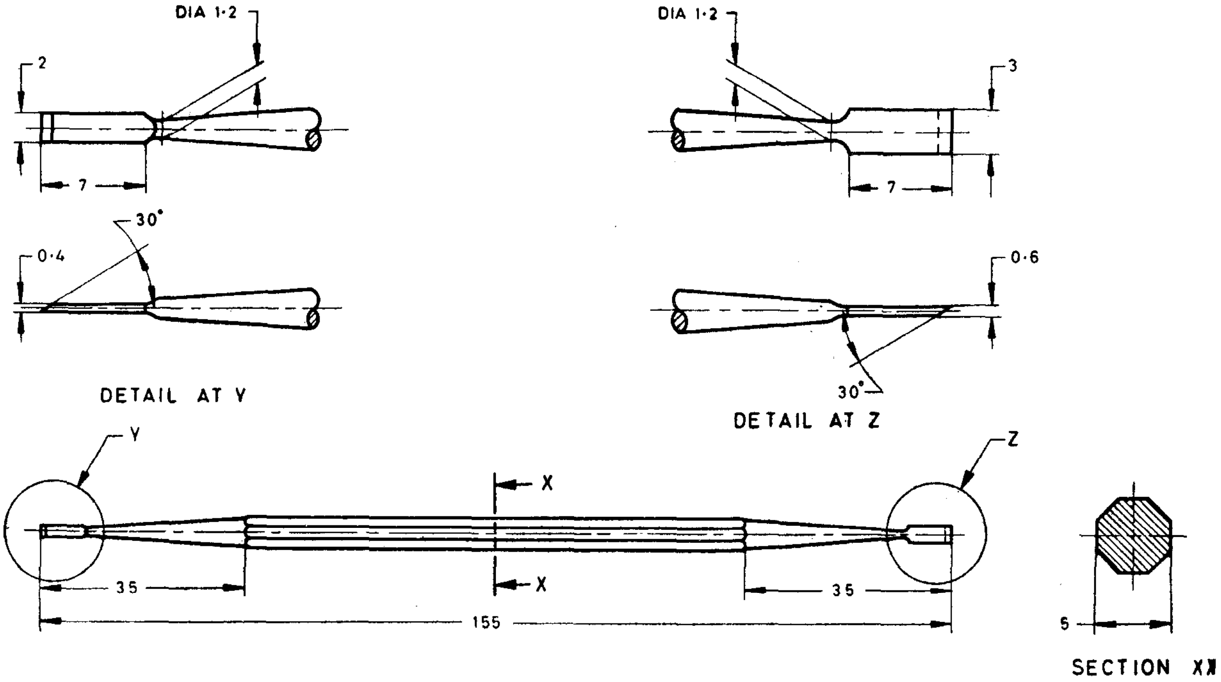

All dimensions in millimetres.

FIG. 1 CHISELS, STRAIGHT, ENAMEL, No. 3 and 4

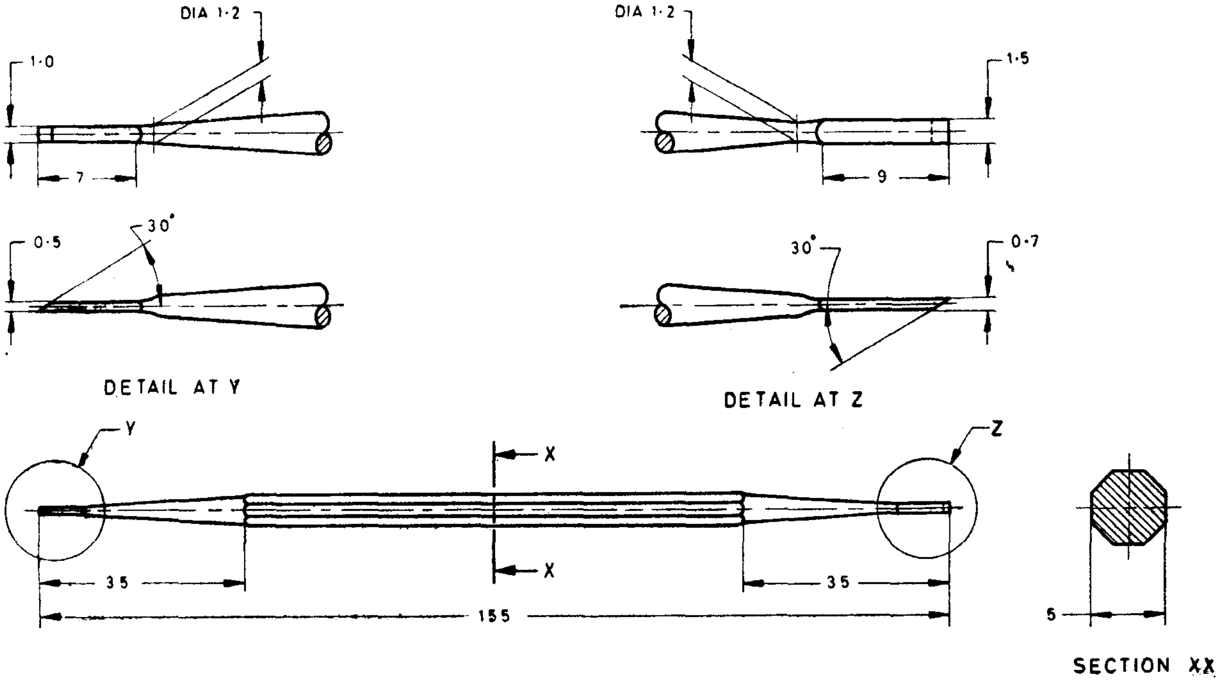

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FIG. 2 CHISELS, STRAIGHT, ENAMEL, No. 85 and 86

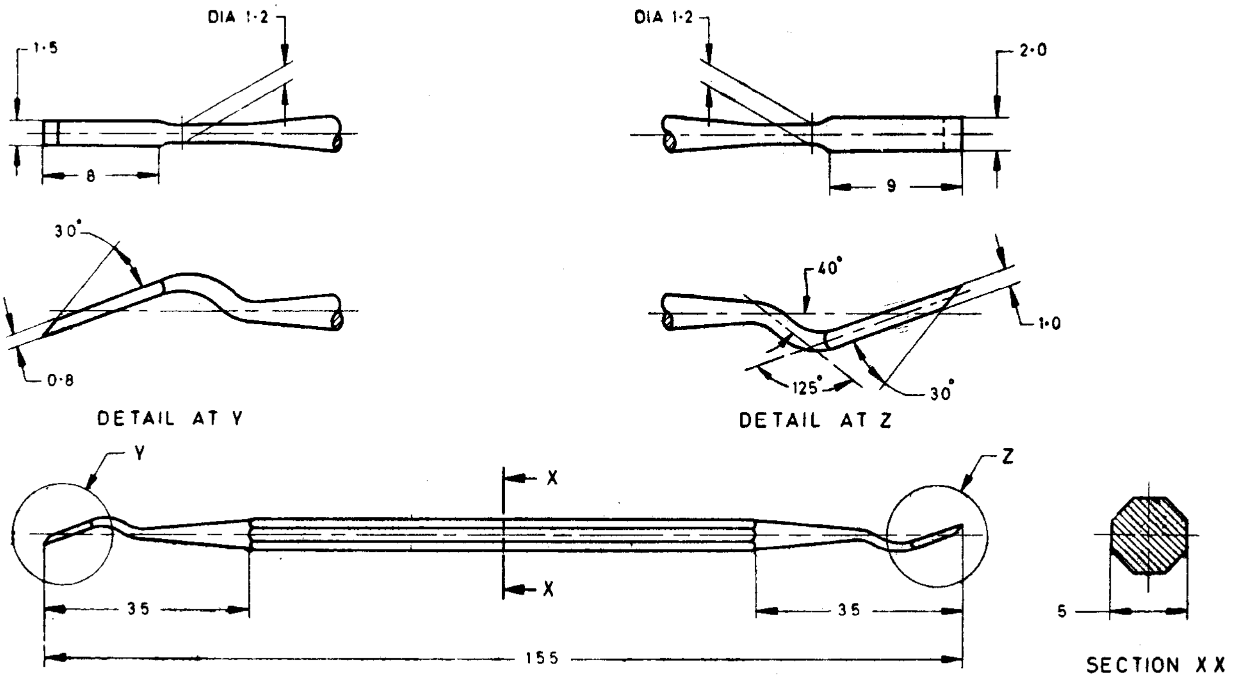

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FIG. 3 CHISELS, ANGLED, ENAMEL, No. 81 and 82

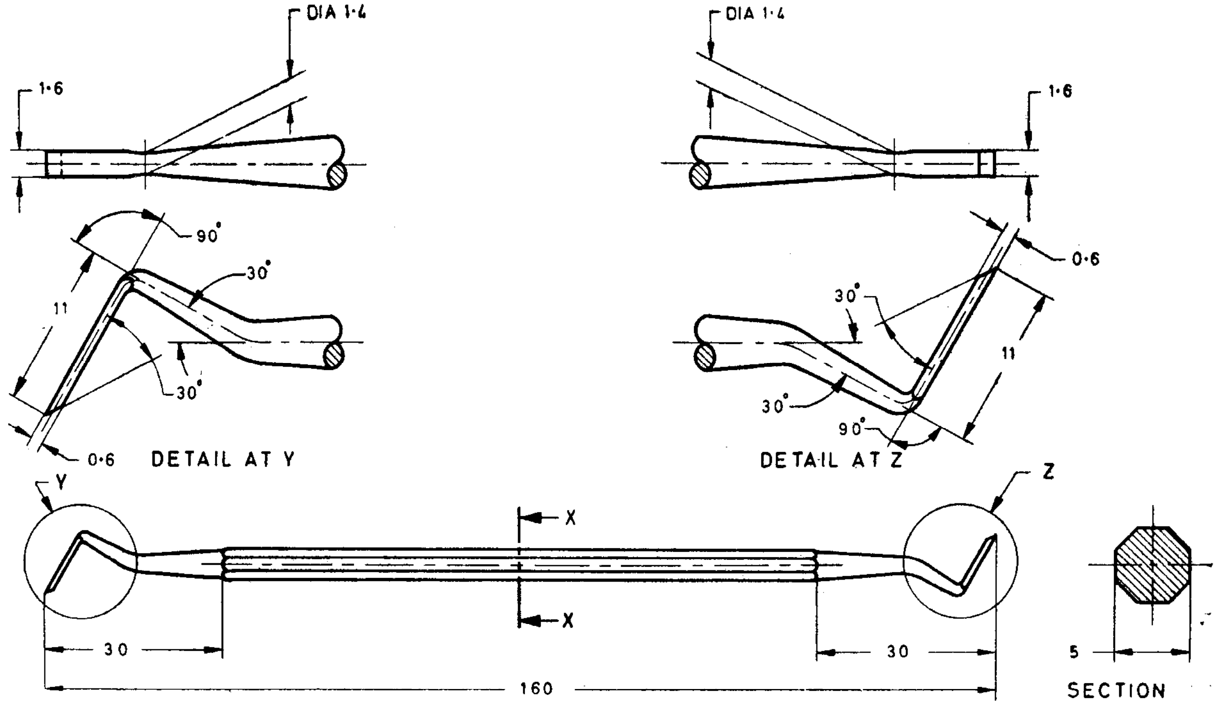

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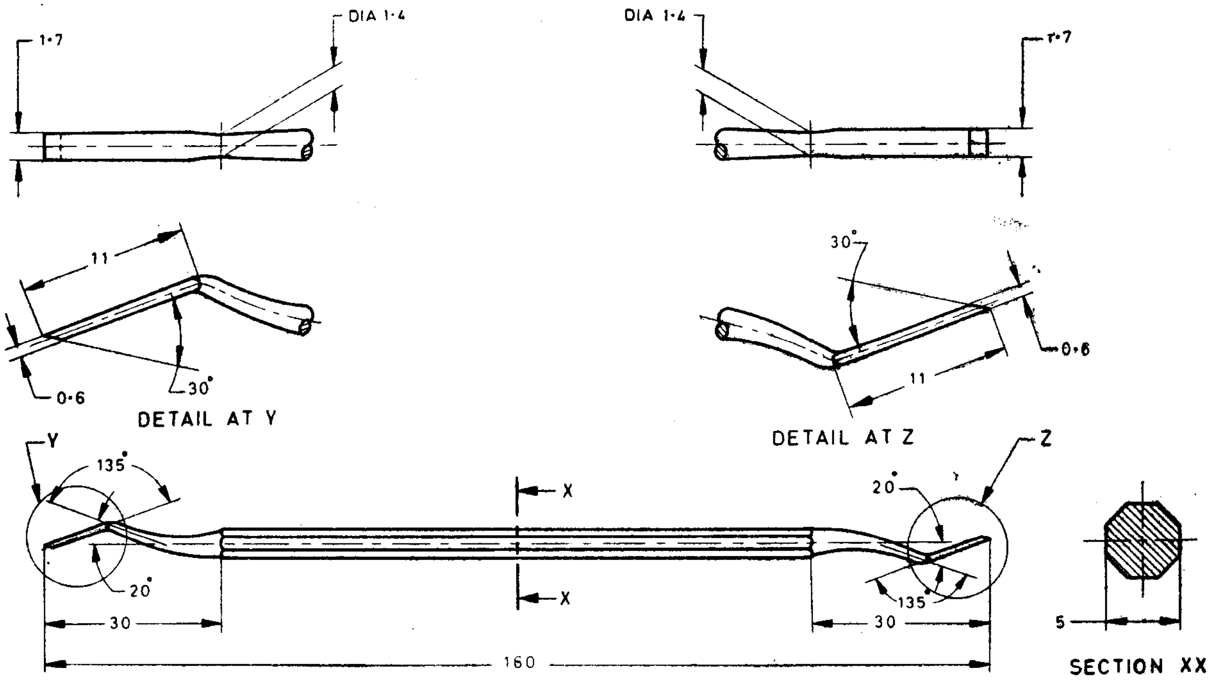
FIG. 4 CHISELS, ANGLED, ENAMEL, No. 87



All dimensions in millimetres.

FIG. 5 CHISELS, ANGLED, ENAMEL, No. 88

9. Tests

9.1 *Performance Test* — The cutting edge of the chisel shall be applied to the surface of a freshly extracted tooth mounted on a sealing wax platform. An attempt shall be made with one hand to chisel the enamel and to enlarge a made-out cavity of the tooth for one minute. The chisel shall do this neatly and show no sign of damage after the test.

9.2 *Corrosion Resistance Test* — As specified in IS : 7531-1975 'Method for boiling and autoclaving test for corrosion resistance of stainless steel surgical instruments'. The chisels shall not show any sign of corrosion after the test.

10. Marking — The instrument shall be legibly and indelibly marked with the manufacturer's name, initials or registered trade-mark, the words 'Stainless Steel' and the country of manufacture.

10.1 *ISI Certification Marking* — Details available with the Indian Standards Institution.

11. Packing — The requirements specified in **10** of IS : 3887-1978 shall apply.

12. Sampling

12.1 Sampling procedure and acceptance criteria for dental chisels shall be as agreed to between the purchaser and the supplier. A recommended scheme for the test is given in Appendix A.

APPENDIX A

(*Clause* 12.1)

SAMPLING SCHEME AND CRITERIA FOR CONFORMITY FOR CHISELS, DENTAL

A-1. Lot — In any consignment, all the chisels produced from the same material under similar conditions shall constitute a lot.

A-2. The number of chisels to be selected from each lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 1.

TABLE 1 SAMPLING AND CRITERIA FOR CONFORMITY

Lot Size (1)	Sample Size (2)
Up to 15	2
16 ,, 50	3
51 ,, 150	5
151 and above	8

A-2.1 These chisels shall be selected from the lot at random and in order to ensure the randomness of selection, procedures given in IS : 4905-1968 'Methods for random sampling' shall be followed.

A-3. Number of Tests and Criteria for Conformity — All the chisels selected at random in accordance with col 1 and 2 of Table 1 shall be tested for shape and dimensions, workmanship and finish, heat treatment, corrosion resistance test, and performance tests. The lot shall be considered as conforming to these requirements if none of the chisels in the sample is found to be defective in any of these tests.

EXPLANATORY NOTE

This standard was first published in 1967. The present revision has been undertaken to bring it in line with the prevailing trade practices in the dental instruments industry.

In this revision, tolerances on linear and angular dimensions, proper references to raw-materials and sampling plan have been specified.

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